# Drugs

Cytochalasins (1.93)

Binds to ends of actin filaments and prevents further polymerization

Phalloidin (1.93)

Binds to actin filaments, stabilizes them, and inhibits depolymerization

Colchicine, Colcemid (1.105, 4.21)

Inhibits addition to MT leading to MT depol

Used to treat gout since it inhibits inflammation of joints via no MT formation in leukocytes

Vinblastine/Vincristine (1.105)

Induces the formation of paracrystalline aggregates of tubulin

Taxol (1.105)

Stabilizes MT

Cardiotonic Steroid Drugs (1.246)

Inhibit Na/K ATP pump thus increasing Na within cardiac muscle cells while causes increased Ca intake into cell thereby increasing contraction strength of the heart muscle

Alkaloids (1.407)

Prevent chromosome spindle formation and block M phase

Antitumor Antibiotics (1.407)

Binds to DNA and blocks S phase

Antimetabolites (1.407)

Blocks cell growth by interfering with S phase

Cdk Inhibitors (1.407)

Blocks progression of cell cycle by inhibiting cdks

Oligomycin (1.494)

Inhibits ATP synthase in mitochondria

Atracyloside (1.494)

Inhibits the adenine nucleotide-transport system in mitochondria

2,4-Dinitrophenol (1.496)

Used to uncouple the oxidative phosphorylation in mitochondria

Cumadin (2.46)

Drug used for anticoagulate therapy that has a side effect of interfering with osteocalcin synthesis and prevents Ca deposition

Antabuse (2.77)

Inhibits acetaldehyde dehydrogenase in alcohol abusers but causes acetylaldehyde buildup

Aspirin (3.54)

Inhibits prostaglandin formation by permanently modifiying and inactivating cyclooxygenase on prostaglandin synthase by acetylation of Ser

Ibuprofen (3.55)

Blocks the hydrophobic channel of cyclooxygenase thereby inhibiting the formation of prostaglandin

Acetaminophen/Tylenol (3.55)

Inhibits cyclooxygenase of PGH2 synthase reversibly. Acts centrally resulting in reduced fever and increased pain threshold. It also puts a lot of stress on the liver.

Lovastatin/Mevacor (3.67)

Competitive inhibitors of HMG-CoA Reductase thereby reducing blood cholesterol

Alli/Orlistat (3.96, 3.482)

It inhibits pancreatic lipase which causes TGs to go unabsorbed. Causes intestinal problems and patient becomes averse to fat and usually results in modest weight loss only.

Benecol (3.97)

Plant sterols that inhibit uptake of cholesterol into micelles and inhibit intestinal cholesterol esterase

Zetia (3.97)

Inhibits enterocyte cholesterol transporter – NPC1L1

Cholestyramine/Colestipol (3.97)

Resins that bind bile acids that reduce body’s recycling of bile resulting in more cholesterol being used for bile synthesis

Niacin (3.314)

It reduces LDL and TG while increasing HDL by decreasing lipoprotein synthesis and VLDL production and decreasing unesterified FA mobilization

Fibrate (3.315)

It decreases TG and increases HDL by antagonizing a transcription factor for genes for lipid metabolism. May increase non-CHD morbidity

Statin (3.316)

Decrease LDL and TG whilst increasing HDL and results in many other anti-atheroscleric effects

TZD Class Drugs (3.573, 3.630)

They act as a ligand to activate PPAR thereby causing adipocyte gene expression. They also help in regulating blood glucose.

Sulfonylurea agents (Glyburide) (3.628)

Bind to sulfonylurea receptors inhibiting the K channel causing increased pancreatic insulin secretion

Meglitinides (Repaglinide) (3.628)

Same as Sulfonylurea agents

Biguanides (Metformin) (3.629)

Decrease hepatic gluconeogenesis and helps up-regulate insulin targets

Allopurinol (4.22)

Used to treat gout by acting as a suicide inhibitor for xanthine oxidase

Uricosuric Drugs (4.22)

Increases renal clearance of uric acid by inhibiting reabsorption

Glutamine analogs (Azaserine) (4.25)

Inhibits anything using glutamine in purine and pyrimidine synthesis

Purine Nucleotide Analogs (4.25)

Inhibits PRPP amidotransferase and is used to treat acute leukemia

5-fluorouracil (4.32)

Inhibits thymidylate synthesis by inactivating it

Intercalating agents

Ethidium bromide (4.160)

Binds between the bases and into the minor groove as an intercalator

Bisdaunomycin (4.161)

Intercalates into DNA and uses benzene groups to interact with minor groove

Actinomycin D (4.162, 4.280)

Intercalates b/w G’s and C’s

Blocks RNA Pol progression

Minor Groove agents (4.162)

Netropsin, Mitomycin C

DNA crosslinkers (4.165)

Platinum based drugs link the two strands together to fight cancer

Acycloguanosine/Acyclovir (4.196)

Causes chain termination when incorporated into viral DNA infections

Cytosine Arabinoside (4.196)

Inhibits topoisomerase 1

Azido-thymidine/AZT (4.196)

Incorporation into DNA results in chain termination. Used against AIDS

Sulfonamide Drugs (4.265)

Inhibit a step in folic acid synthesis

Rifampicin (4.280)

Binds to beat subunit of prokaryotic RNA polymerase. Used to treat TB

Alpha-Amanitin (4.280)

Inhibits eukaryotic RNA Pol 2 and 3

Tamoxifen (4.290)

Binds to estrogen binding region and recruits co-repressors that suppress gene activity

Diphtheria Toxin (4.318)

Inactivates EF2 within a cell preventing all protein translation and eventual cell death